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THE CONFERENCE BOARD

Worldbusiness Perspectives No. 51
October 1979

A GLITTERING PROBLEM?

During the past month, U.S. financial markets have been buffeted by continued high rates of inflation and rises in interest rates that caught many market participants flat-footed. These domestic developments were accompanied by sharp increases in the price of gold to new record levels throughout the world during the month of September (Chart 1).

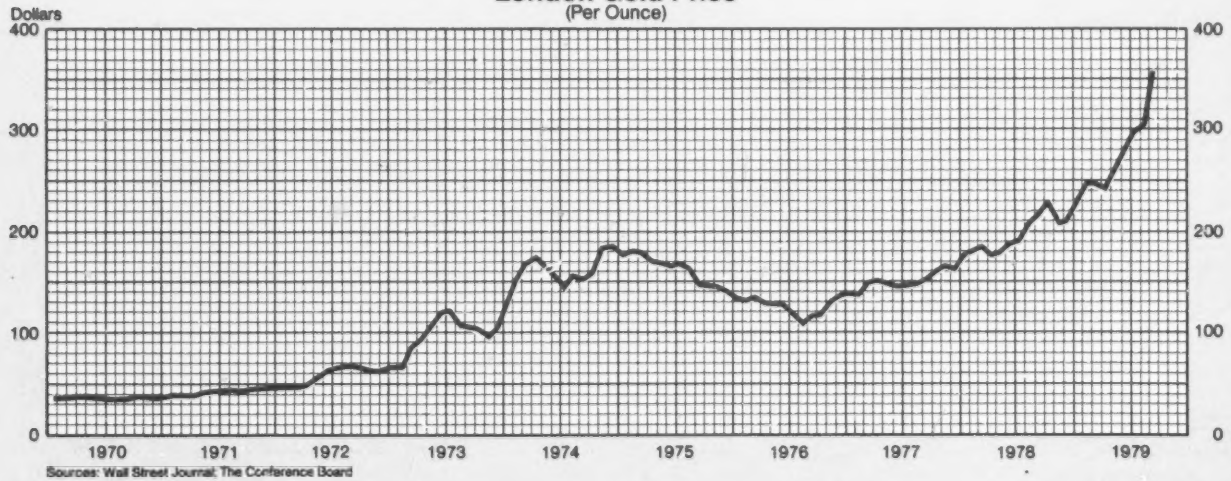
The return to double-digit inflation in the United States is especially distressing since the 1973 and 1974 rates of increase in consumer prices were supposed to be due to "special factors" (e.g., energy costs) that were unlikely to be repeated. The high rates of inflation during this earlier period were regarded as temporary aberrations and were not incorporated into ensuing wage settlements. In a recent address, Henry C. Wallich, Member, Board of Governors of the Federal Reserve System, called attention to the danger that a wage-price spiral could result if existing rates of inflation were to spill over into wage settlements.

Inflationary Forces

Although the percentage increase in oil prices in 1979 is less than that in the 1973-1974 period, rising prices of energy products have undoubtedly contributed to inflation. They do so to the extent that monetary policies are eased to accommodate increases in oil import prices. A less accommodative monetary policy would allow

Chart 1

London Gold Price
(Per Ounce)



Sources: Wall Street Journal; The Conference Board

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more of the so-called tax effect of higher oil import prices to deflate the economy, that is, more of U.S. disposable income would be spent on imported oil, leaving less to be spent on U.S.-produced goods and services. Rising oil prices can, therefore, have both an inflationary and a dampening effect on the economy.

Further, while energy prices have risen sharply during 1979, the full impact of the rising costs of energy on the U.S. economy is still limited. Part of the inflationary (or, as explained above, deflationary) impact of rising energy costs is, therefore, yet to come—particularly the indirect effects on oil related products, the influence of which, according to some experts, is as large as the direct effects of rising costs.

Another important contributing force to the surge in U.S. inflation has been the depreciation of the dollar against other major currencies. The point is often made that the United States is "ahead" of other major industrial countries in the business cycle: The suggestion is that U.S. rates of inflation are peaking, while those of other major countries may rise for a more extended period. It may well be true that the United States will experience a recession before other major countries. But, as noted in the *Forty-Ninth Annual Report* of the Bank for International Settlements, differences in the stages of the business cycle reached by the major industrial countries are themselves due to differences in the policies adopted since the worldwide recession of 1974-1975. U.S. policy, for instance, placed relatively greater emphasis on promoting economic growth while policies of Japan and the Federal Republic of Germany gave priority to controlling inflation at the expense of faster growth in the immediate future. The improvements in U.S. rates of inflation relative to these other countries may, therefore, be less than anticipated.

In foreign exchange markets, the net effect of these policy differences to date has been a decline in the dollar's international value that has itself resulted in higher U.S. inflation rates than were anticipated. Both the experience of recent years and quantitative studies lend support to the view that the process feeds on itself. For example, as the dollar depreciates, imports become more expensive, and U.S. domestic producers of competitive products find it easier to raise prices. In countries whose currencies have appreciated, such as the Federal Republic of Germany and Japan, imports of oil and other goods priced in dollars become less expensive. For this reason, wide swings in exchange rates became a powerful force in contributing to the stability of the so-called strong currencies and placed further pressure on the dollar, thereby reinforcing differences in actual and anticipated rates of inflation among the major industrial powers.

A New Promoter of Inflation?

Before the widespread movement to floating exchange rates, the argument was frequently advanced that greater flexibility in exchange rate movements—whether "managed" or not—would decrease the need for official international reserves. Since 1973, however, there has been a massive increase in reserves, the bulk of which has been in U.S. dollars. Total reserves have nearly doubled, rising from $183 billion at the end of 1973 to $363 billion by the end of 1978. According to the latest information available from the International Monetary Fund (IMF), U.S. dollar-denominated assets continue to account for approximately 80 percent of official foreign exchange holdings.

In addition to improved reserve positions many countries have had relatively easy access to international credit facilities, as evidenced by the exceptionally narrow spreads on loans in Euromarkets. There have, for instance, been loans made at less than 0.5 percent above the London Eurodollar interbank offered rate (LIBOR), a spread that many bankers and other financial experts regard as potentially dangerous.

Effects of Rising Gold Prices

Aside from the increase in total reserves and international credit, there is one new, and possibly important, contributor to the longer term forces that promote inflation. Sharp increases in the market price of gold in recent months have forcefully called attention to what may be another important potential force for promoting inflation—the price of gold itself—though the extent of the increase varies according to the currency in which gold is valued (see Chart 2).

Chart 2

Market Prices of Gold, 1977-78

(In U.S. Dollars and Swiss Francs, per Ounce)

Sources: Bank for International Settlements, The Conference Board

In theory, increases in the price of gold and, therefore, in the value of national gold holdings need not necessarily promote inflation. It is, for instance, possible to offset (through open-market operations by the monetary authorities) the increases in a country's monetary base, or so-called high-powered money, that would result from higher gold prices. Or, to take another example, the price of gold may rise during a period when the rise would promote real economic growth rather than inflation.

In practice, however, higher prices of gold appear likely to add to inflationary forces. From the broadest point of view, they increase the total reserves of the world monetary system at a time when there appears to be no need for more reserves. In recent years, there has been no lack of world credit, and overall reserve levels appear, to say the least, adequate. A further increase in international liquidity will occur when the sizable 50 percent increase in quotas of member countries of the IMF becomes effective. Increases in the price of gold in 1978 alone, for instance, added nearly $60 billion to the level of world reserves if gold were valued at its market price. Also, as regards the distribution of official gold holdings, higher prices of gold will permit a number of countries running payments deficits to follow more expansionary policies than they would have otherwise and, possibly, to postpone corrective measures.

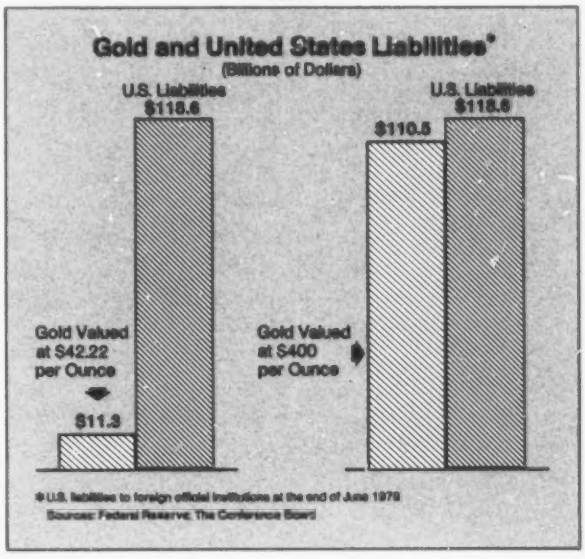
In addition to official holdings of gold, there are, of course, substantial holdings of gold by private investors and by governments that are not presently members of the IMF. The sums involved are substantial, and some estimates place these holdings as roughly equal in value to those held by official institutions. Private holders of gold could, on a net basis, sell some of their holdings to official holders, thereby contributing to even further increases in reserves and in a country's high-powered money. At a minimum, the wealth position of private holders of gold would improve substantially and this is likely to affect their own economic activity.

Movements in the price of gold are not, of course, always in one direction. The London gold price, for instance, fell from $185 at the beginning of 1975 to $103 in August, 1976. And, on October 3, 1979, the price fell from $426 to $402—a record decline for a single day's trading.

Different Ways of Valuing Gold

There are, therefore, serious limitations in valuing official gold holdings at market prices. Indeed, since the official price of gold was abolished for IMF members, those countries have valued gold in a number of different ways. (Effective July 1, 1978, according to an amendment to the Fund's Articles of Agreement, the value of Special Drawing Rights was no longer to be expressed in gold. This was part of a conscious attempt to reduce the role of gold in the international monetary system.) Some countries use the average value of gold over a period of months; some use the average value for only one month; and some apply a discount to the average value for the period that is chosen, for example, the average value less, say, 10 percent.

Chart 3



When the market price of gold rose above $400 in the first days of October, it did not escape notice that the gold holdings of the United States, if they were to be valued at the existing market price, were nearly equal to the total of U.S. (nonbank) liabilities to foreign official institutions of roughly $119 billion (see Chart 3). The rise in the price of gold overseas to levels at which the United States could nearly cover its liquid liabilities, along with the role of gold in the creation of the European Currency Unit (ECU), prompted speculation that there could be a return to some sort of gold exchange standard. According to the terms of the European Monetary System, which became operative in March, 1979, ECU assets were created as the participating countries swapped 20 percent of their gold and dollar reserves with the European Monetary Cooperation Fund. These swaps are renewed every three months and the ECU assets created can vary, among other things, with changes in the price of gold. This attempt to keep the dollar honest, so to speak, appears to be at odds with the position of IMF member countries to gradually reduce the role of gold in the in-

ternational monetary system. Toe bulk of the world's official gold holdings—both in total amounts outstanding and as a percentage of total reserves—rests with the United States and the European countries.

Notwithstanding its importance as an issue, the main point here, however, is not whether the role of gold in the world's monetary system should be reduced or increased. Rather, it is to call attention to a potential inflationary force whose influence should be taken into consideration in decisions concerning both world and domestic liquidity.

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THE CONFERENCE BOARD

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FOREIGN CAPITAL EXPENDITURES BY AMERICAN COMPANIES: New Factors at Work in 1980?

The pace of spending on plant and equipment in foreign countries by affiliates of American manufacturers should slow down in 1980 from the near-record increase shown in 1979. The latest survey (October, 1979) by The Conference Board reveals that approximately 45 percent of the responding companies plan to increase their expenditures in 1980 above the 1979 levels. As substantial as this proportion is, it falls short of the 52 percent that reported higher expenditures in the last survey of April, 1979 with respect to 1979 over 1978.

At the same time, companies reporting plans to spend the same in 1980 as in 1979 have moved up to nearly 39 percent of the responses from 35 percent in the previous survey. Though the companies planning increases outnumber by a considerable margin those planning decreases (a ratio of nearly 2.9 to 1), the rise in the importance of those planning no substantial change from their 1979 expenditures should serve to hold down the overall increase in 1980 expenditures.

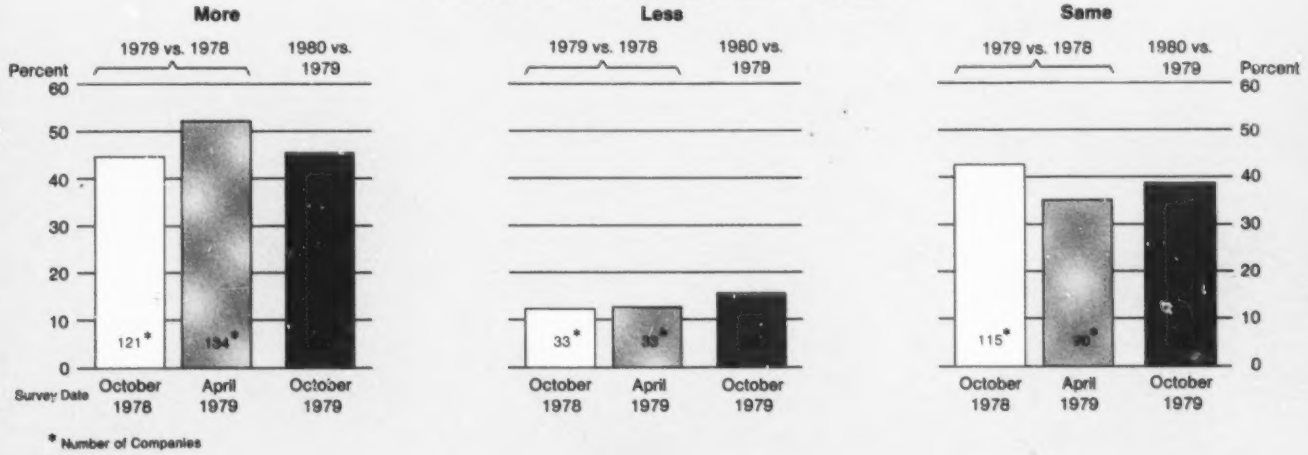
No Downturn Expected

It should also be noted that the slowdown expected in 1980 will not be so great as to cause a downturn in anticipated expenditures on plant and equipment in foreign countries by affiliates of American manufacturers. No projections of money expenditures were requested in The Conference Board survey, but the substantial percentage planning increases in 1980 will almost unquestionably result in dollar expenditures being lifted—very likely by a substantial margin—over 1979.

Chart 1

Manufacturers' Plans for Plant and Equipment Expenditures Outside the United States

Number and Percent of Companies Planning to Spend:



* Number of Companies

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Moreover, the most recent survey by the U.S. Department of Commerce, which contains money estimates, points to approximately a 17 percent increase in 1980 over 1979. This survey was carried out in June, 1979, however, and it is possible that plans have since changed. It should also be noted that the survey of the Department of Commerce shows a slow-up in capital expenditures in 1980 from the 1979 pace—17 percent against 21 percent. The 1979 rate, though elevated, does not constitute a record, since several years in the past show higher rates of increase (see table below).

Foreign Plant and Equipment Expenditures (Manufacturing and Petroleum) and Annual Percent Change, 1971-1980

	$ Billions	Percent Change From Previous Year
1971	12.0	—
1972	12.4	3.3%
1973	15.6	25.8
1974	19.4	24.4
1975	20.2	4.1
1976	18.8	—6.9
1977	22.0	17.0
1978	24.6	11.8
1979[a]	29.8	21.1
1980[a]	34.8	16.8

a—Preliminary

Though there is a clear slow-up in the expected rate of increase in plant and equipment expenditures, about the same money increase—$5 billion—will occur in 1980 as in 1979. Continued inflation will reduce the real value of this increase in 1980 below the 1979 level.

Faster Growth in United States of Capital Expenditures

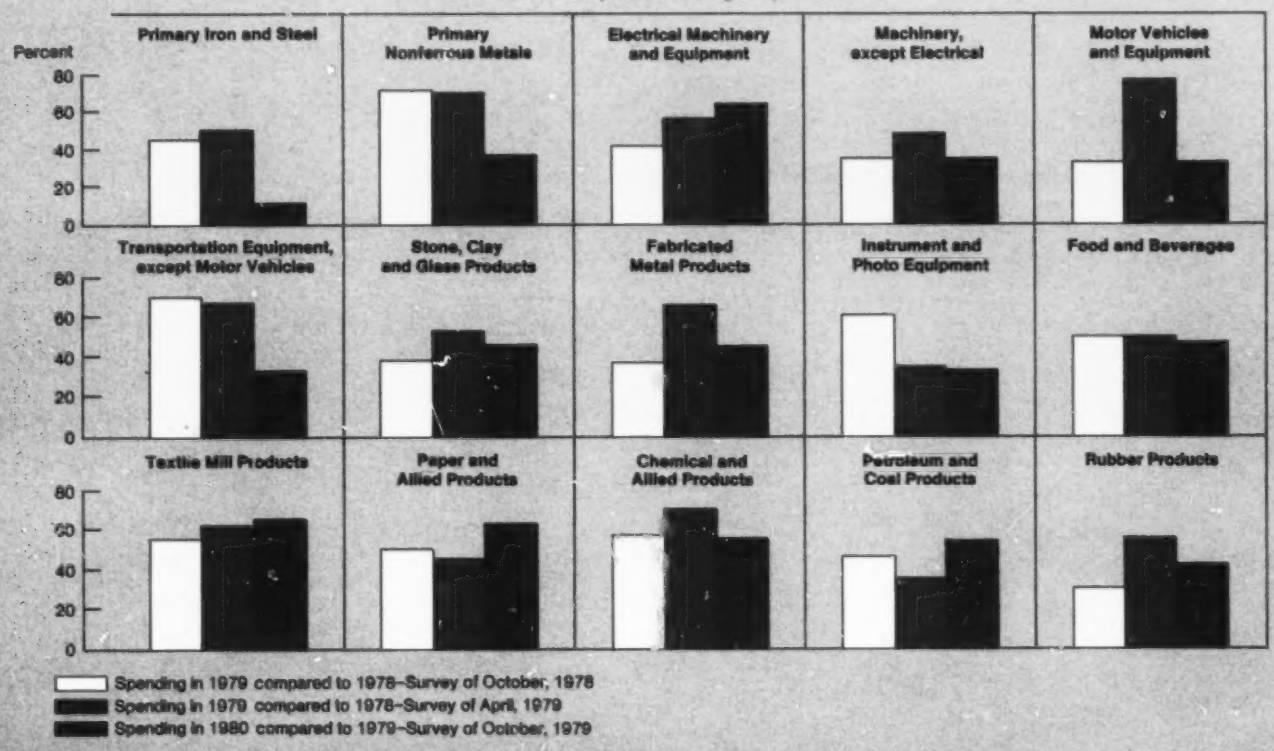
In the United States, manufacturers increased their total outlays for new plant and equipment by nearly 16 percent in 1979. The earliest indications are that they expect to raise their 1980 expenditures by 19 percent. If 1980 expectations hold, capital expenditures then will grow more rapidly in the United States than abroad, thus reversing the 1979 relationship.

This comparative slowdown in plant and equipment expenditures outside the United States is expected to take place at a time when industrial activity abroad will be expanding faster than at home. In the principal foreign industrial countries, which account for nearly two-thirds of plant and equipment expenditures by foreign affiliates of American manufacturers, industrial output has been rising quite vigorously. In the year ending in the third quarter of 1979, the increase was at a rate of 5.7 percent. By contrast, industrial output in the United States has been lackluster, increasing at about half the rate of the major foreign industrial countries.

Chart 2

Spending Plans for Plant and Equipment Outside the United States by Industry

Percent of Companies Planning to Spend More



The difference is even sharper when the comparison is confined to the most recent quarter where United States industrial output rose by only 0.8 percent. In contrast, the foreign rate was nearly 5 percent. Many forecasts include the likelihood soon of a cyclical downturn in the United States—though one has not yet materialized.

Moreover, this difference in economic performance is also reflected in the latest compilation of leading economic indicators for six of the major foreign industrial countries. With 1970 as 100, the combined index of leading economic indicators for Canada, Japan, United Kingdom, West Germany, France and Italy advanced 12 percent during the year ending in September, 1979. The comparable United States index was up only 3 percent.

With the economic and business outlook presenting such a comparatively buoyant appearance outside the United States, why are American manufacturers increasing their investment here more rapidly? Some of the answer is to be found in the reasons, described later, for making foreign investments.

Industry Experience

The expected slow-up in the growth of plant and foreign equipment expenditures is expected to take place across the industrial spectrum. Of the 15 industries shown in Chart 2, only 4 indicate intentions to increase their spending on plant and equipment in foreign countries in 1980 over the 1979 level. The very pervasiveness among industries of the expected slow-up support the likelihood of its coming about for all industries combined.

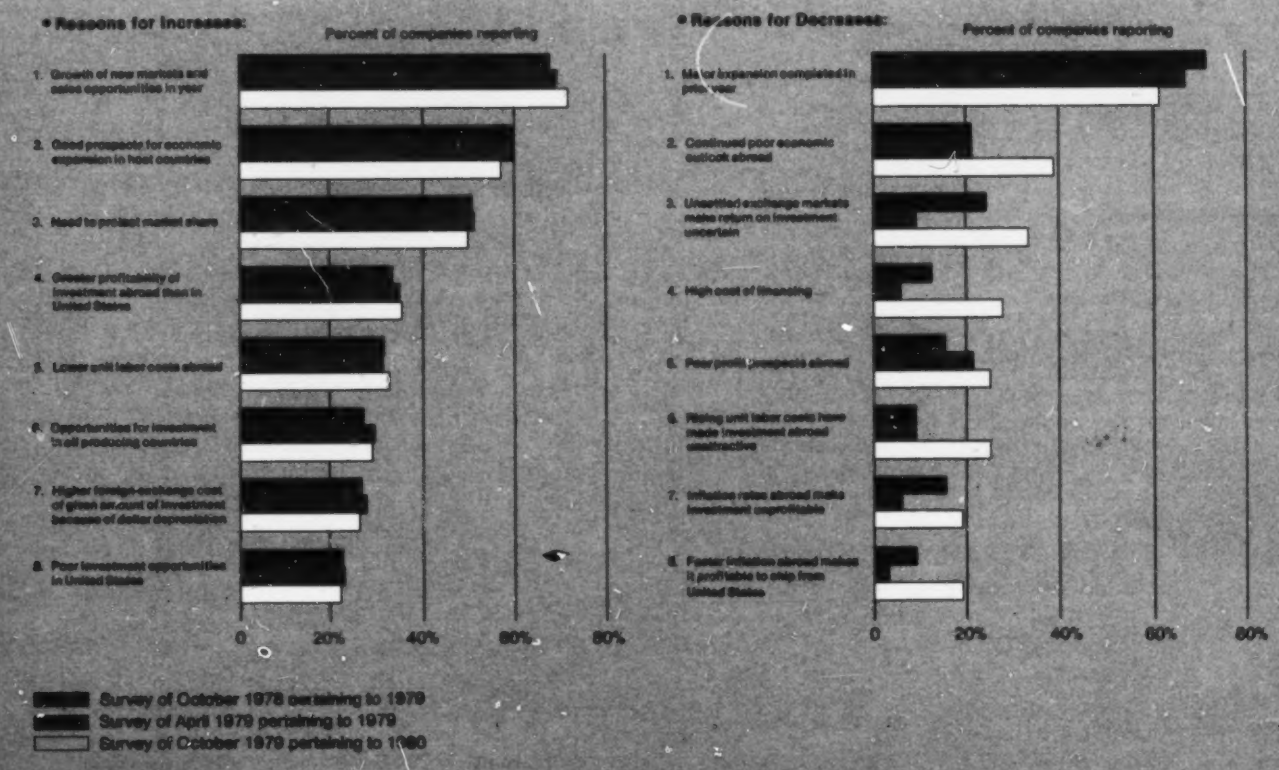
Of the four industries in which a greater percent of the respondents expect to raise their 1980 expenditures, three are in nondurable industries—textile mill products, paper and allied products; petroleum; and coal products. The fourth is electrical machinery and equipment.

For a number of the industries—particularly those in the nondurable field—the expressed intention to spend more has remained fairly stable in the last three surveys pertaining to 1979 and 1980. The food and beverages industry, for example, has reported 50 percent of the companies planning to increase in the October, 1978 and April, 1979 surveys and 48 percent in the October, 1979 survey. The other nondurable industries were not quite as stable, but all except one showed less than 20 points variation. The maximum variation among the nondurable industries was 26 percentage points in the rubber industry.

Most of the durable industries showed much more variation in their plans for spending on plant and equipment in foreign countries. The most notable case was the motor vehicles and equipment industry, which showed a spread of 45 percentage points.

Chart 3

Reasons for Making Expenditures on Plant and Equipment Outside the United States-All Manufacturing


• Reasons for Increases:
Percent of companies reporting
1. Growth of new markets and sales opportunities in year
2. Good prospects for economic expansion in host countries
3. Need to protect market share
4. Greater profitability of investment abroad than in United States
5. Lower unit labor costs abroad
6. Opportunities for investment in oil producing countries
7. Higher foreign-exchange cost of given amount of investment because of dollar depreciation
8. Poor investment opportunities in United States
0
20%
40%
60%
80%
• Reasons for Decreases:
Percent of companies reporting
1. Major expansion completed in prior year
2. Continued poor economic outlook abroad
3. Unsettled exchange markets make return on investment uncertain
4. High cost of financing
5. Poor profit prospects abroad
6. Rising unit labor costs have made investment abroad unattractive
7. Inflation rates abroad make investment unprofitable
8. Faster inflation abroad makes it profitable to ship from United States
0
20%
40%
60%
80%
Survey of October 1978 pertaining to 1979
Survey of April 1979 pertaining to 1979
Survey of October 1979 pertaining to 1980

Reasons for Making Investment

The most frequent reason cited for increasing plant and equipment expenditures was that the respondents expected to see a growth of new markets and sales opportunities in the upcoming year. While this has almost always been the prime reason cited, it was mentioned by an even greater percentage of the respondents this time—72 percent—than in the previous two surveys. The faster growth in production already noted for 1979 in foreign industrialized countries is evidently expected to continue into 1980.

"Good prospects for economic expansion in host countries," a reason naturally related to the prime one, was the second most frequently mentioned. The percentage of companies giving this as a reason was slightly down from the previous two surveys. Too much importance should not be attached to these small changes, however, since both the first and second reasons are very similar in content. The small variation in frequency of mention may simply be fortuitous, reflecting a slight change in emphasis on the part of the respondents.

Another market-related reason—"need to protect market shares"—was the third most common reason given for increasing foreign capital expenditures. This reason, which is more defensive in character, was mentioned by half of those companies planning to expand their foreign capital outlays. Again, very little difference is evident in comparing the results with the two prior surveys.

Reasons for Curtailing Investments

While the ranking of reasons given for expanding plant and equipment expenditures in foreign countries has remained remarkably stable in the last three surveys, considerable changes in reasons are offered for cutting back on such investments. For one, there has been a steady decline in the most important reason: that a major expansion was completed in the prior year. While this reason is still the most important one, the 61 percent frequency of mention in the October, 1979 survey represents a considerable drop from the 76 percent level of the year before.

Second, there is a sharp jump in the importance of the reason, "continued poor economic outlook abroad," which in the most recent survey was mentioned by 39 percent of those companies planning to reduce their 1980 expenditures. In the previous two surveys, this reason held steady at 21 percent. In part this reason may be regarded as market based, that is, the poor economic conditions abroad mean that the market is weak for the sale of products that the respondent might manufacture.

Another interpretation may be reasonable however. Namely, poor economic conditions are a way of describing other factors that have grown sharply in importance in the minds of respondents for restricting their foreign capital expenditures. These are such nonmarket factors as the following.

Unsettled exchange rates, for example, have loomed in importance. A third of the respondents offered this as a reason in October, 1979. In contrast, only 9 percent thought exchange rates were of importance in the prior survey.

The high cost of financing is apparently giving more companies reason for pause. Nearly 28 percent cited this as a reason in the current survey against only 6 percent in the prior one.

The fear of inflation abroad has also grown sharply in importance as a reason for holding back on foreign capital spending. Almost one-fifth of the responding companies offered this reason in the October, 1979 survey in contrast to 6 percent who regarded it as a factor in the previous survey.

"Rising unit labor costs have made investment abroad unattractive" is a closely allied factor. One-quarter of the companies offer this reason currently in contrast to only 9 percent in the prior survey.

Another reason which has also grown sharply in importance and is related to the comparative rates of inflation is that "faster inflation abroad makes it profitable to ship from the United States." Nearly one-fifth regard this as important now in contrast to only 3 percent in April, 1979.

These five factors, leaning in the direction of holding back spending on plant and equipment in foreign countries, may serve to explain the apparent paradox of faster growth in 1980 of plant and equipment expenditures in the United States than in foreign industrial countries when output is expected to expand faster abroad. These five factors are largely non-market related and have all increased enormously in the consciousness of foreign investment managers; enough so, apparently, to override the considerably more buoyant economic conditions abroad.

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THE CONFERENCE BOARD

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R and D Investment and National Productivity

In the business sector of the United States economy—a sector that makes up three-quarters of the whole—the national income per person employed rose at an annual rate of 2.4 percent during the quarter century spanning the years 1948 through 1973. Productivity rates then declined in the years 1973 through 1975 and, following a brief recovery in 1976, inched forward at less than 1 percent annually. Most recent government data suggest continued stagnation in productivity growth.

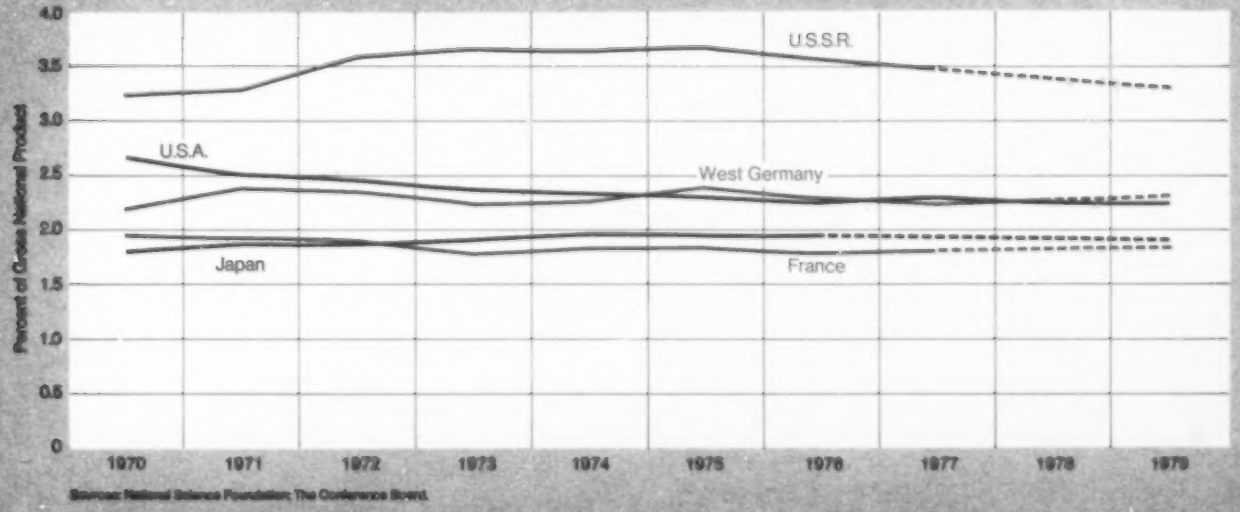
In contrast, our economic competitors who invest heavily in R and D are faring better in the productivity race. With 1967 as the base of 100, output per hour in the United States rose from 115.7 in 1972 to 129.2 in 1978. During this same time period, the output in Japan rose from 162.3 to 215.7 and in Germany from 128.7 to 175.3.

Declining investments in R and D are certainly not the whole answer to stagnant or declining productivity, but they are a factor. According to John Kendrick, for example, "The industries that spend above average on R and D tend to have higher rates of productivity advance."[1] Economist Edward Denison, who insists that numerous other factors are responsible for slowdowns in productivity, concludes that: "[to say] R&D is

[1]John W. Kendrick, *Understanding Productivity: An Introduction to the Dynamics of Productivity Change*. Baltimore: Johns Hopkins University Press, 1977 p. 53.

Chart 1

R and D Investments as a Percentage of Gross National Product



Sources: National Science Foundation; The Conference Board.

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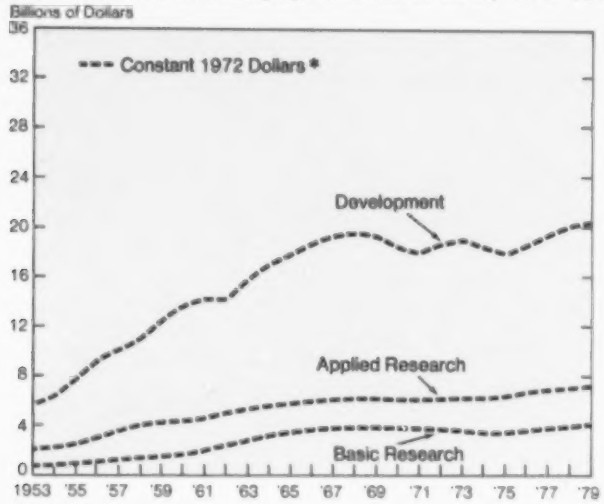
Chart 2

National R and D Spending by Character of Work, 1953 - 1979



*Based on GNP implicit price deflator
Source: National Science Foundation

probably not responsible for much of the productivity retardation is not to deny that the expansion of R&D is a promising way of promoting future productivity growth."[2]

In the period immediately following World War II, the United States enjoyed an overwhelming lead in science and technology. But during the decade of the 1970's, its economic and political competitors narrowed this lead.

At the same time, the U.S. appetite for R and D investment, built on technical demands and the momentum of World War II, as well as the space race with the Soviets, has slackened. Chart 2 illustrates the reduced U.S. enthusiasm for R and D investments since the Korean War years and the nation's initial period of space exploration. Between 1953 and 1961, on a constant dollar basis, U.S. investments in basic research increased at a rate of 13 percent annually. Between 1961 and 1967, advances in such investments slowed to an imperceptible 0.3 percent annually, although funds committed to applied and developmental research still advanced at rates of 5.4 and 5.3 percent annually.

Then, between 1967 and 1975, average R and D investments in both basic and developmental research actually declined, while expenditures for applied research remained virtually unchanged. Only in the past four years have U.S. investments in basic, applied and developmental research once again pointed upwards—at a modest rate of approximately 3.5 percent per year.

[2]Edward F. Denison, "Explanations of Declining Productivity Growth," *Survey of Current Business*, Part 2, August, 1979, p. 7.

Meanwhile, economic and political competitors of the United States have been increasing their expenditures on research and development. One way of measuring comparative national commitment to technological progress is to express R and D expenditures as a percentage of a nation's gross national product.[1] Such a comparison shows that U.S. investment in R and D has declined steadily during the past decade, from 2.64 percent of GNP in 1970 to 2.22 percent in 1979 (see Chart 1). The Soviet Union, by contrast, boosted its spending from 3.23 percent in 1970 to 3.4 percent in 1977. Both Japan and West Germany were also increasing their R and D investments during that time. Meanwhile, Canada's investments and those of the United Kingdom remained essentially the same, while those of France declined.

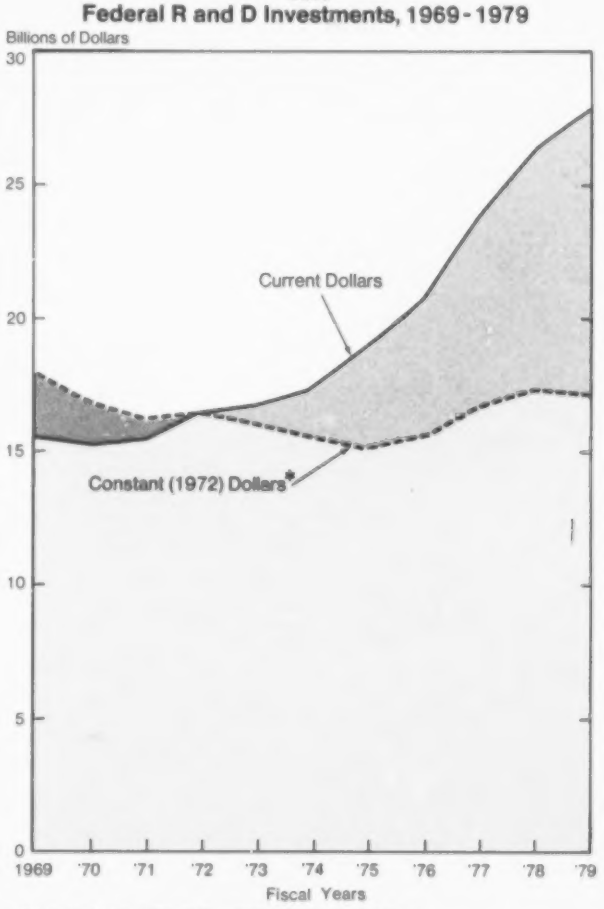
The Gap in Basic Research

For observers concerned with declining U.S. commitment to R and D, there is additional worry over how

[1]Not all economists agree that this measure is completely valid.

Chart 3

Federal R and D Investments, 1969 - 1979



*Based on GNP implicit price deflator with an estimate for FY 1979
Source: National Science Foundation

various R and D funds are distributed—particularly for basic research. Critics of priorities set for R and D claim that the nation is largely "living off the interest generated by the space program R and D bank accounts."

The programs of the National Aeronautics and Space Administration—often focused on basic, "leading edge" technology—produced a bountiful harvest of technical breakthroughs in electronics, metallurgy, chemistry, optics, life sciences, and numerous other areas. Spin-off products from these efforts are still providing the seed for many of our current technological advances. But with the declining national interest in high-technology exploration, and—until recently—a declining government commitment to R and D investment, there is some fear that we are short-changing our basic research activities.

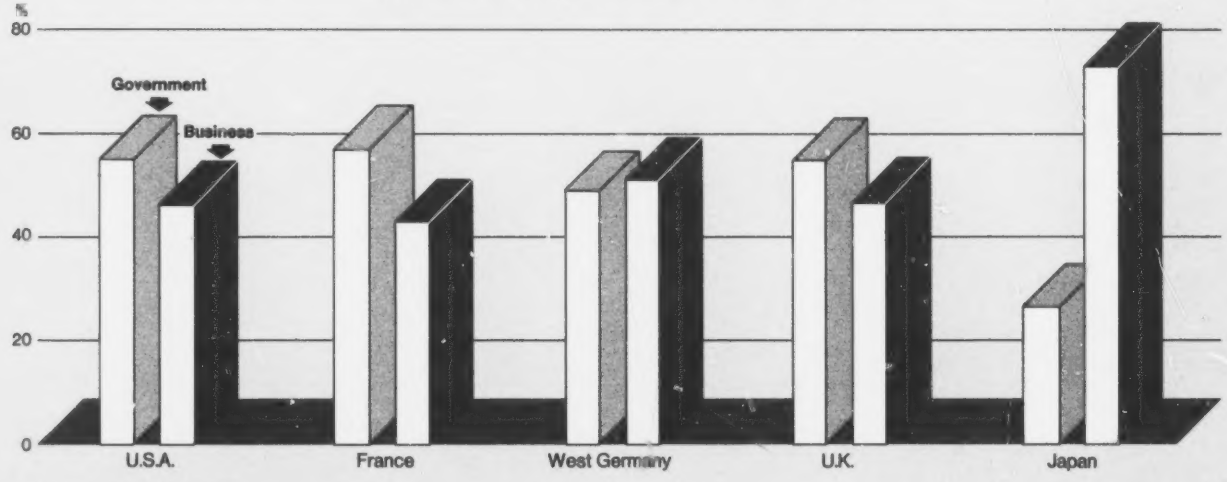
Federal moneys are the source of most funds for basic research. As Chart 3 shows, federal R and D investments declined during most of the period from 1969 through 1979. And it was not until the end of the 1970's that federal funding again reached the levels achieved in the late 1960's. Since the private sector does relatively little basic research, the decline in federal R and D moneys, in total, has represented a net loss in the nation's basic research investment.

During the 1960's, the Federal Government funded more than 60 percent of the nation's total R and D effort. Since that time, there has been a 22 percent reduction in support—to the point where federal investments are only slightly more than 50 percent of the $60 billion total spent on R and D. For the period 1968 to 1978, R and D funding declined by 40 percent as a percentage of the federal budget. The reduced government support of basic research may be one factor contributing to a measurable decline in U.S. science and technology as a percentage of all world science and technology. Yale University science historian Derek Price estimates that as late as 1967 the U.S. accounted for about 33 percent of all world science and technology. By 1980, the U.S. share has dropped to less than 25 percent.

A variety of indexes suggest that U.S. science and technology is still advancing, but that the technology of its competitors is moving forward at an even greater rate. For example, the number of patents issued by the U.S. Patent Office to foreigners has more than doubled during the past decade—foreigners, principally Japanese and West Germans, now account for 38 percent of the patents issued. Moreover, in a study of what scientists and engineers regard as 500 of the most significant technical innovations of the post-World War

Chart 4

Average Percentage Distribution of R and D Expenditures by Source of Funding, Government vs. Business*



* Average of Years 1970-1978
Note: R and D Expenditures in U.S.S.R. are considered 100% government funded
Sources: National Science Foundation; The Conference Board

II period, U.S. scientists were found to account for about four-fifths of these innovations during the late 1950's and early 1960's. Following 1955, however, their contributions began to decline, amounting to little more than 50 percent by the early 1970's. While that contribution is certainly nothing to be shamefaced about, there are signals abroad that the U.S. share of the world's science and technology is likely to decline even further during the 1980's.

The Scientist Shortage

Advancements in science and technology require a combination of qualified scientific manpower, research funds and facilities—and an incentive system that rewards scientific exploration. The U.S. stock of scientific manpower has been at a virtual standstill for nearly a decade. During that same time, America's economic and political competitors are said to have been building a cadre of trained scientists and engineers. The years 1968 to 1978 showed that the relative fraction of scientists and engineers found in the U.S. labor force declined by 13 percent. Meanwhile, the USSR, West Germany, and Japan were boosting their technical manpower by 55 percent, 59 percent, and 62 percent, respectively. The Soviet Union is estimated to have more than double the number of scientists and engineers that exist in the United States. Japan, with less than half the population base of the United States, has almost the same number of engineers and scientists engaged in its nonmilitary research and development sector.[4]

[4]There is some difference of opinion over what constitutes a "scientist" or "engineer" in various countries. Some have argued, for example, that a number of those included in the count of Soviet "engineers" are actually "lab technicians."

Much of the basic research for the United States is performed by university scholars and faculty members. Up until 1967 or so, the total number of faculty members at American universities expanded at a compounded annual growth rate of 7 to 8 percent.

Obviously, such growth could not be, and was not, sustained. There was an appreciable slowing in the late 1960's, and since that time the annual faculty growth rate has been 2 percent or less. The result of these trends is that at the university level, where the vast majority of basic research is performed by senior faculty members, the United States is now confronted with a relatively static scientific employment picture. The opportunities for new Ph.D.'s in science and engineering are limited by static faculty sizes.[5]

Thus, the scientific manpower engaged in basic research has been steadily aging. This is worth noting since the most significant technological innovations in a number of disciplines have been accomplished by younger scientists.

The latest budget submitted by the Carter Administration to the Congress for fiscal 1981 contains some real increases in federal R and D funding. Total federal R and D obligations are proposed to rise by 13 percent to $36.1 billion. Basic research investments will be up by 12 percent to $5.1 billion, following a 10 percent rise in fiscal 1980. The National Science Foundation's budget is up by 15 percent, and will exceed $1 billion for the first time. After more than a decade then, U.S. government commitment to R and D investments, particularly in the area of basic research, appears to have been renewed.

[5]The overall employment picture for new Ph.D.'s is not promising. A recent survey by the Bureau of Labor Statistics found that 47 percent of new Ph.D. recipients in 1970 to 1976 took employment in jobs that traditionally do not require such academic credentials.

E. Patrick McGuire

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April 1980

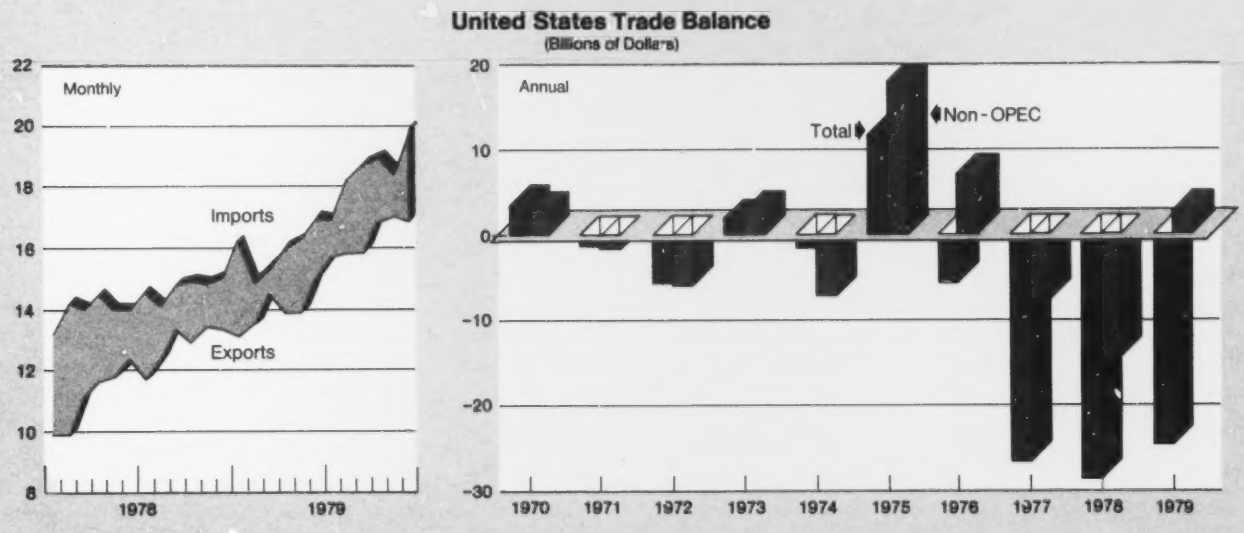
U.S. FOREIGN TRADE IN 1979
Some Small Progress

President Carter remarked recently that "Americans have not lost the will and capacity to compete in world markets. Our exports [in 1979] increased by nearly $40 billion over 1978. Many of our manufacturing industries scored significant gains in their shares of foreign markets . . . This progress is heartening." It is true that last year's U.S. trade deficit of $24.7 billion was a substantial improvement over the record $28.4 billion deficit registered in 1978. But it is also true that that excess of imports over exports still was the third largest in U.S. history.

Paying For Costlier Oil

Half of the 20 percent rise in import value in 1979 was accounted for by the higher cost of oil imports. Due to the nearly continuous increase in official and unofficial OPEC prices throughout the year, U.S. oil import prices advanced steadily from $13.64 per barrel in January to $24.81 in December, with the year's average per barrel price of $18.72 at 41 percent above 1978 levels.

It is often suggested to strike a trade balance excluding oil imports to obtain a more meaningful measure of the underlying U.S. trade position. However, such a nonoil balance cannot indicate what the U.S. trade picture would have been in the absence of higher oil prices. A more realistic picture emerges if one strikes a trade balance that excludes not only oil imports, but total trade with OPEC—since the oil-exporting countries would not have been able to sustain their fairly high purchases from the United States in recent years without the benefit of higher oil revenues. This alternate measure can at best be an approximation, but it shows that in 1979, for the first time in three years, the United States achieved a small surplus in its trade with the non-OPEC world.



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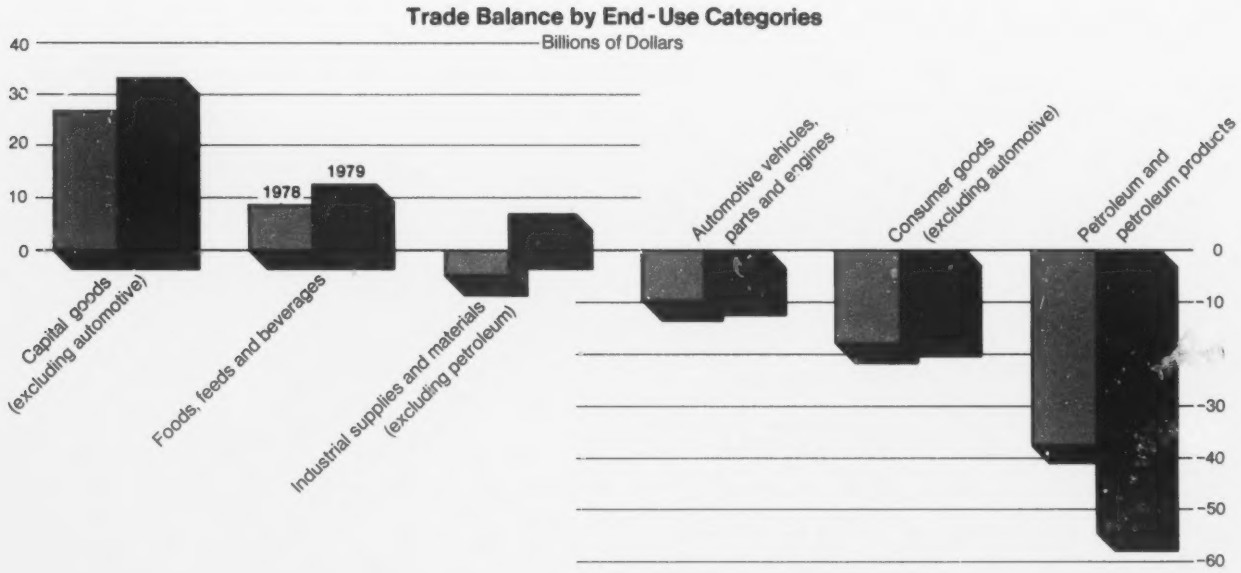


One encouraging aspect of last year's trade results is that, in volume terms, imports rose by only 1 percent (oil imports alone by only 2 percent), as against a 9 percent gain in exports. To a large extent, this reflects a more buoyant economic climate abroad than in this country. For 1979 as a whole, industrial activity in seven major foreign countries combined rose by 5.8 percent as against only 4.2 percent in the United States, marking the first year since the 1974-1975 recession that economic activity abroad was more brisk than in this country. This higher expansion rate abroad was one of the main factors behind the 23 percent increase in U.S. exports of manufactures and the dramatic turnaround in the trade balance on such goods from a $5.8 billion deficit in 1978 to a $4.5 billion surplus last year.

These general trends are expected to continue into 1980. Further improvement in the surplus on manufactures is anticipated, as foreign demand for such goods continues to increase, albeit at a reduced rate. The Conference Board's latest *International Economic Scoreboard,* released in February, found that the leading indicators for the six major industrial countries outside the United States reached new highs in late 1979 and that "this bodes well for U.S. exports." At the same time, as the U.S. domestic economy slows down further, U.S. import demand will remain dampened.

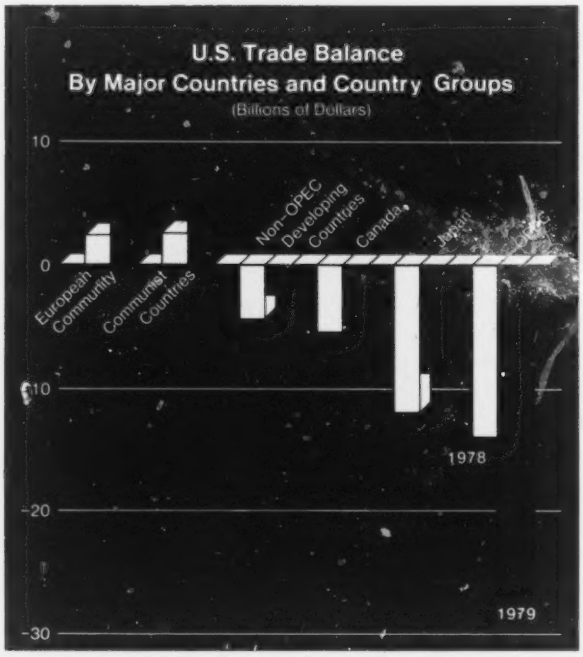
In addition, U.S. agricultural exports this year are expected to reach record highs, despite the ban on grain sales to the Soviet Union. Thus, the Department of Agriculture has projected total exports of over $36 billion in fiscal 1979-1980, compared with $32 billion in 1978-1979. Wheat, feed grain, and soybean shipments each are estimated to be some 8 to 10 percent higher in volume, while the 1979 cotton harvest is expected to boost exports to their highest level in over 20 years.

According to current estimates, however, these largely positive elements are likely to be more than offset by a jump in oil imports to as much as $90 billion as oil prices escalate further. The trade deficit, therefore, will probably widen again in 1980, and the "heartening" progress achieved last year will be erased.

Valuing U.S. Imports

Unfortunately, even if this year's exports and imports remained exactly the same as last year's, the U.S. trade data for 1980 would look worse than the 1979 results—at least when they are first released. Under a provision of the Trade Agreement Act passed by Congress last year, the Commerce Department is now required to report the monthly trade figures using the so-called c.i.f. (cost including insurance and freight) method for valuing imports. Publication of import data under the former f.a.s. (free alongside ship) definition is to be "withheld" by 48 hours. Naturally, with insurance and freight charges included with imports, the new procedure will show a considerably larger trade deficit, or a smaller surplus, than before. (In January of this year, the difference came to $1.3 billion.)

Congressional proponents of the c.i.f. valuation method have long argued for its compilation and publication, claiming as a major advantage that it would provide "more meaningful trade statistics for use in developing legislation and assessing our trade position." The argument had also been made that, since most other countries were valuing their imports at the



port of entry (that is, c.i.f.), the United States was in a sense "undervaluing" its imports. Under an amendment to the reporting provisions of the Tariff Act of 1930, the Commerce Department therefore began, in January, 1973, to publish two sets of import statistics simultaneously. The first showed imports, as well as the trade balance, using the so-called customs or f.a.s. value for imports; the second—now to be released first and separately—showed imports and the trade balance on a c.i.f. basis.

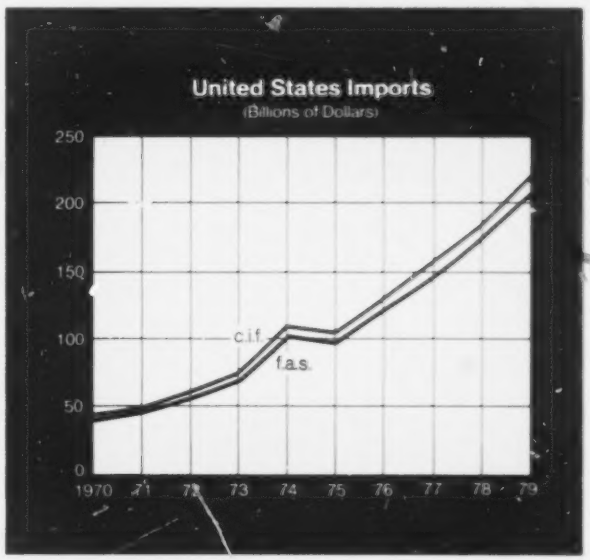
Publication of the new series and the fanfare that this monthly event usually generates in the media raise some disturbing questions. Will the new data—which make imports appear larger and the trade balance weaker—be seized upon to bolster various arguments, decisions and legislation? For instance, will the International Trade Commission come to feel that it has hitherto been dealing with understated import data and will it, therefore, be more easily influenced in the future to recommend relief to domestic industries? Even more important, will publication of the new data further strengthen the hand of protectionist elements and make life more difficult for those who steadfastly have been pleading the case for freer trade? And, finally, will an apparently weaker trade balance be taken as reflecting unfavorably on the prospects for the dollar?

Commerce officials have made it clear that the new manner of presenting the trade figures will in no way alter the quarterly and yearly balance-of-payments statistics, which are a more comprehensive indicator of this country's international position. In analyzing U.S. balance-of-payments trends, it would in fact be inaccurate to include *all* freight and insurance charges connected with U.S. imports. To the extent that such services are supplied by U.S. firms, they do not represent balance-of-payments transactions. The problem of proper allocation of these charges would be multiplied in the geographic breakdown of imports, since even where shipping and insurance services are provided by foreign countries, these are in many cases not the same countries that are supplying the goods. The Commerce Department, therefore, admits that more detailed commodity and country analysis "will have to be done after f.a.s. import figures are available."

Promoting U.S. Exports

In light of the continuing U.S. trade deficits and the recurring weakness of the dollar, a number of thoughtful observers have looked beyond the year-to-year data and possible patchwork remedies and have examined the U.S. attitude toward exporting and the entire philosophy underlying this country's approach to its international economic responsibilities.

A recent study by the Center for Strategic and International Studies at Georgetown University, for instance, discusses the different appreciation of exports in the United States and in the other major trading countries. With domestic markets in those countries "much more limited in size and dependent to a far greater extent than the United States on imported supplies and materials, exports have always been given high priority . . . In contrast, the vast American market could be exploited by domestic producers with ease at low risk. Aggressive marketing efforts were



directed toward this huge free trade area where the same familiar language, laws, and institutions prevailed. Exports, moreover, in the later 1940's and 1950's sold themselves; they did not have to be marketed. Foreign buyers literally came knocking, by post, telephone, wire, to make inquiry about the availability of American goods. U.S. producers, selling only domestically and unacquainted with the procedures of exporting, frequently ignored these overtures—and still do."

An even more critical analysis of the U.S. approach to exporting is contained in a September, 1979, report by the Comptroller General's office. While the report ostensibly addresses itself to issues and problems in trade relations between this country and Japan, its overall findings and conclusions can be applied to U.S. trade in general. After alluding to the very close cooperation between government and business in Japan in the formulation and implementation of trade policy and to the tight "overlap between industrial policy and trade policy," the report notes:

"When we Americans consider export policy, we are not thinking of government policy affecting the mix of exports. Instead we are thinking of government enhancing awareness of the national need to export, of government providing market-opportunity data for products the private sector chooses to produce, of government showing American wares through trade fairs and of government providing preferential credit. If we are considering the industrial sector, we anticipate that government, through commercial officers attached to missions worldwide, will assist businessmen with their trading problems; if we are thinking of agricultural exports, we anticipate more of a partnership between government and farm groups, with the agricultural attaches abroad participating in selling efforts."

The report also underscores the sharp contrast between U.S. and Japanese policy on manufactured goods exports, as reflected in the approaches taken by the Department of Commerce and Japan's Ministry of International Trade and Industry (MITI). "Commerce begins with marketing; MITI begins . . . with the question of which industries provide the best exports. Commerce treats industries neutrally; MITI has a priority list. Commerce has no reservations about what it will promote as exports; for example, as part of its adjustment assistance program to shoes, it has even undertaken to promote exports. To avoid competition with industrializing countries on products where labor costs are significant and where Japan believes it cannot compete, Japan constantly seeks higher value-added products and ones that are income elastic, i.e., ones where demand will grow with rising income." Shoes, the report notes wryly, do not fall into that category.

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June 1980

FOREIGN CAPITAL EXPENDITURES BY AMERICAN COMPANIES
A Second Reading on 1980

The Conference Board's latest survey on the 1980 plant and equipment expenditures abroad by U.S. manufacturing companies, taken in April, shows few basic changes from the preliminary survey for 1980 done last October. Of the 260 companies responding, virtually the same percentages indicated increases, decreases or no change in such outlays as in the October tally (which had included 229 companies).

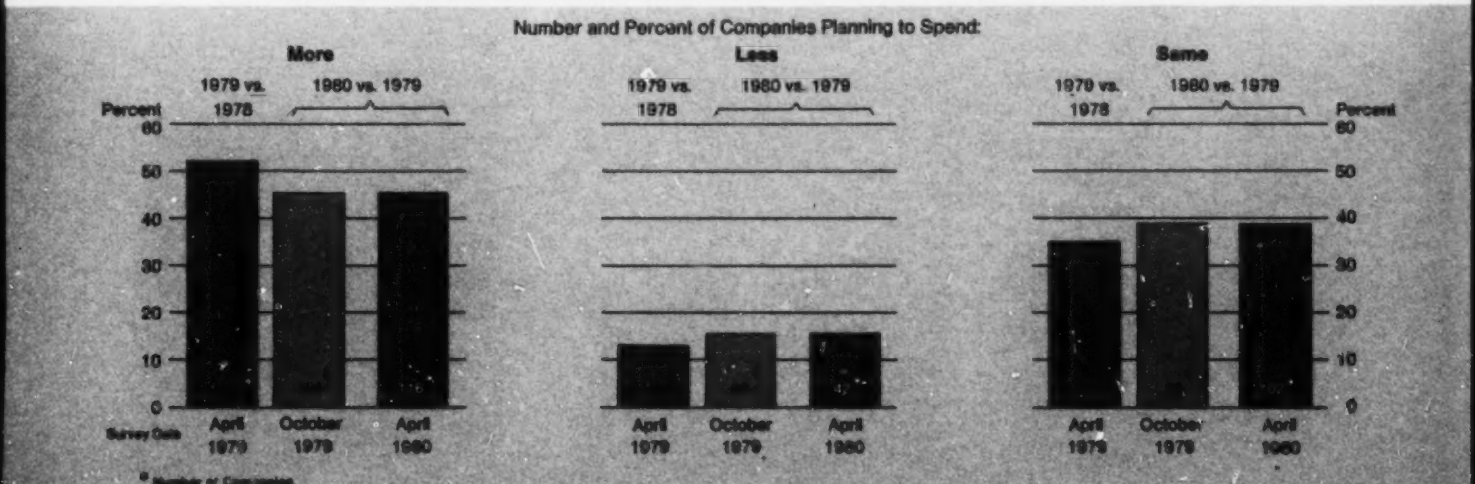
The growth of new markets and sales opportunities abroad continued to be the main reason cited by companies anticipating increased spending, while the completion of major expansion abroad in 1979 again led the list for those expecting reduced outlays this year. In both cases, those reasons were adduced by two-thirds of the respondents in each group.

On an industry basis, some differences emerged relative to the preliminary reading of last Fall. This time around, a substantially larger share of companies indicated increased investment abroad in iron and steel, as well as in motor vehicles and equipment.

The continued high rate of planned increases (45 percent of all reporting companies) corroborates the most recent survey by the Department of Commerce, taken in December, which looks for a 26 percent, $48 billion, increase in overseas plant and equipment expenditures this year. In contrast to The Conference Board survey's strong vote for "good prospects for economic expansion abroad," however, the Department notes that the contemplated 1980 increase comes "despite expectations of an economic slowdown in major host countries, and partly reflects continued high rates of inflation abroad."

John Hein

Manufacturers' Plans for Plant and Equipment Expenditures Outside the United States



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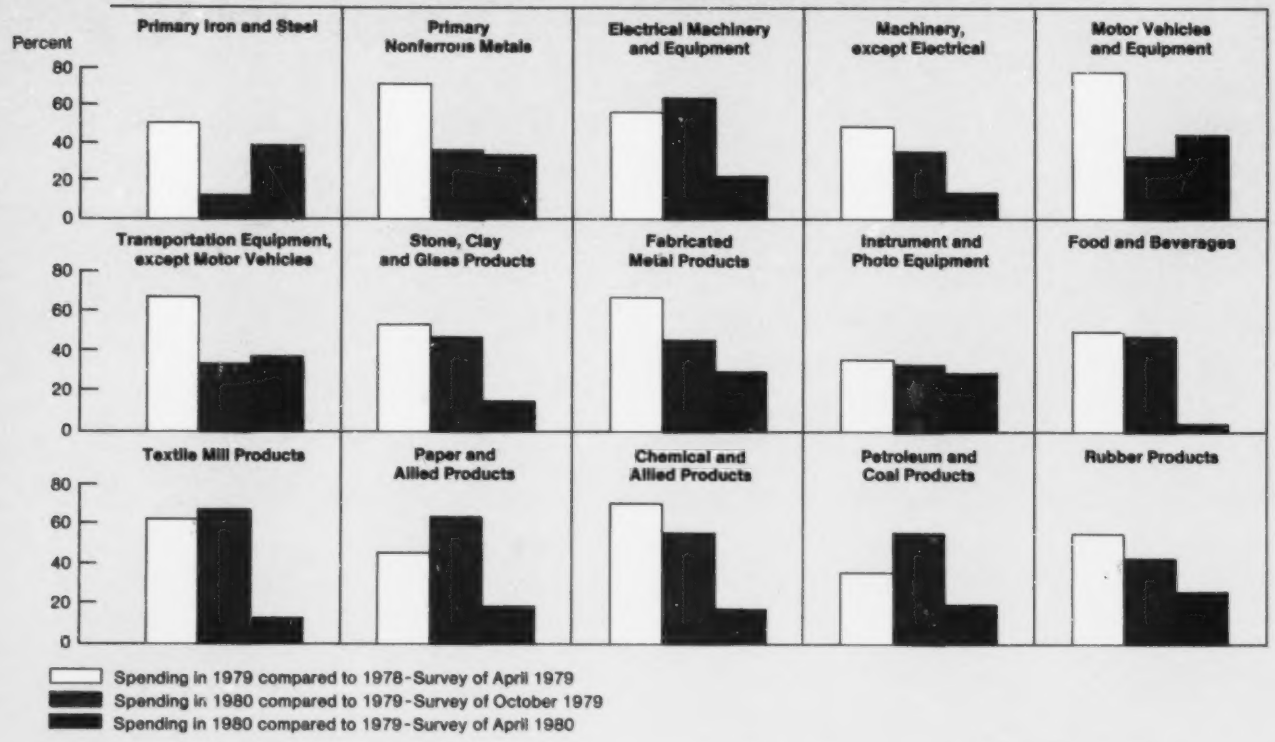
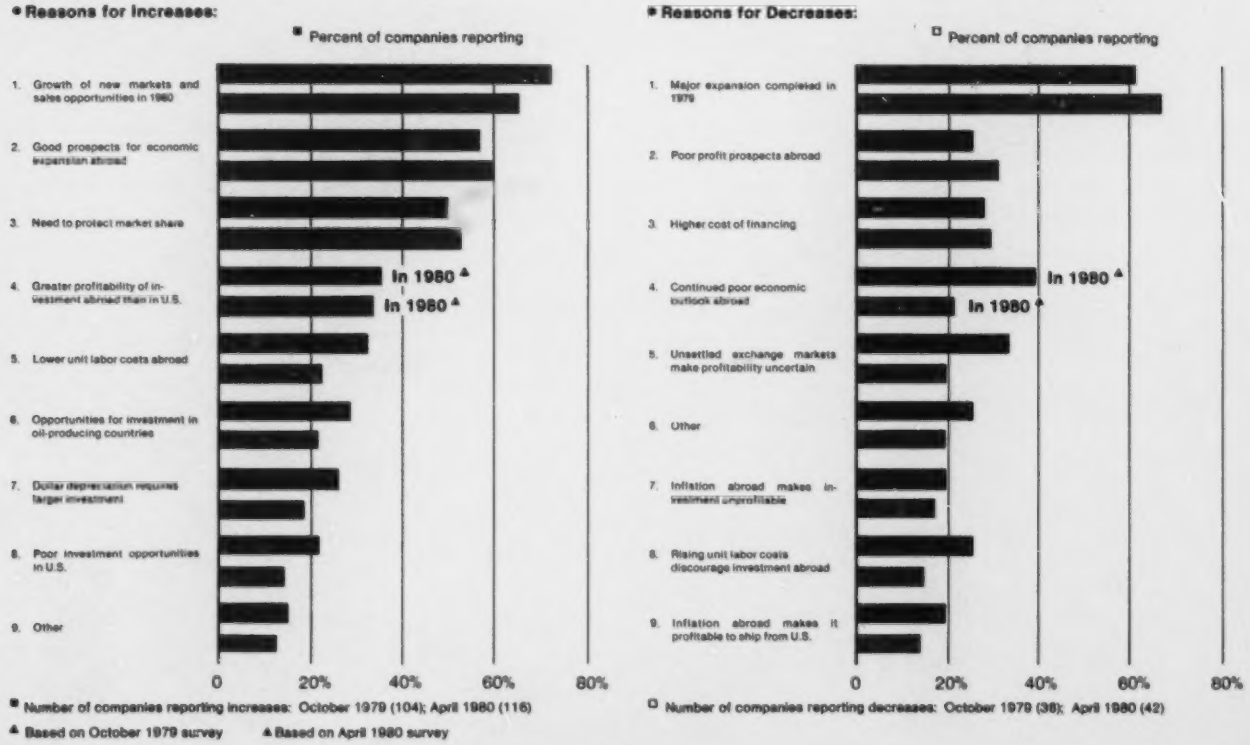
Spending Plans for Plant and Equipment Outside the United States by Industry

Percent of Companies Planning to Spend More



Reasons for Plant and Equipment Expenditures Outside the United States--All Manufacturing


• Reasons for Increases:
■ Percent of companies reporting
1. Growth of new markets and sales opportunities in 1980
2. Good prospects for economic expansion abroad
3. Need to protect market share
4. Greater profitability of investment abroad than in U.S.
In 1980 ▲
In 1980 ▲
5. Lower unit labor costs abroad
6. Opportunities for investment in oil-producing countries
7. Dollar depreciation requires larger investment
8. Poor investment opportunities in U.S.
9. Other
0
20%
40%
60%
80%
■ Number of companies reporting increases: October 1979 (104); April 1980 (116)
▲ Based on October 1979 survey
▲ Based on April 1980 survey
• Reasons for Decreases:
□ Percent of companies reporting
1. Major expansion completed in 1979
2. Poor profit prospects abroad
3. Higher cost of financing
4. Continued poor economic outlook abroad
In 1980 ▲
In 1980 ▲
5. Unsettled exchange markets make profitability uncertain
6. Other
7. Inflation abroad makes investment unprofitable
8. Rising unit labor costs discourage investment abroad
9. Inflation abroad makes it profitable to ship from U.S.
0
20%
40%
60%
80%
□ Number of companies reporting decreases: October 1979 (38); April 1980 (42)

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For the second time in less than ten years, world oil prices have taken a sharp upward leap, more than doubling between the end of 1978 and mid-1980. Even in nominal terms—that is, adjusted for the price of world exports of manufactures—the average price of an OPEC barrel last year was 50 percent above the average for 1978. As with the first oil price increase in 1973-1974, now popularly dubbed OPEC I, the latest increases (OPEC II) portend a large jump in the oil exporters' external surpluses—the excess of their oil revenues over what they spend on imported goods and services.

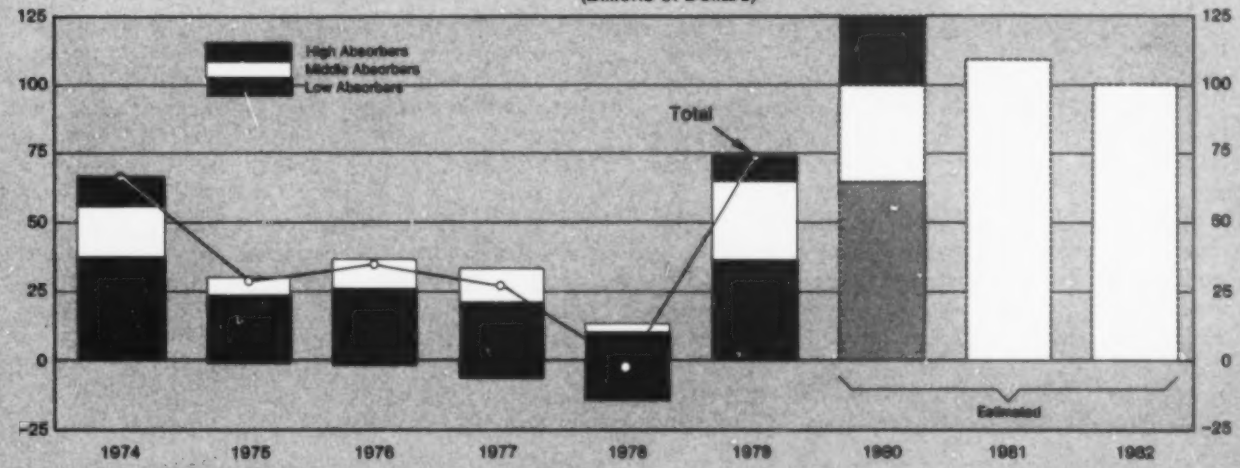
Tracking Exporters' Surpluses

In 1974, it had been widely predicted that surpluses of oil revenues would remain large for years. The 1974 surplus was practically halved the following year, both because the 1974-1975 recession greatly reduced the demand for oil in the industrial countries, and because OPEC imports rose more rapidly than anticipated.

In 1974 and 1977, surpluses were increasingly concentrated among the "low absorbers"—countries such as Saudi Arabia, Kuwait, the United Arab Emirates, and Qatar that have relatively small populations and, hence, are able to spend only a small portion of their oil revenues. At the other end, the "high absorbers"—populous countries such as Indonesia, Nigeria and Venezuela, whose revenues are usually spent in full on importing goods and services—actually ran deficits in 1975-1978. An intermediate group, the "middle absorbers," including Iran, Iraq and Libya, generally recorded modest surpluses.

These distinctions are useful only in analyzing the last few years and are likely to be blurred by the very large surpluses expected in the coming few years. For even if future oil price increases can be contained, it is clear that the impending surpluses will not recede as quickly

Oil Exporters' Current-Account Surpluses
(Billions of Dollars)



Note: "Oil exporters" includes 13 OPEC members, Bahrain, Brunei, Oman and Trinidad and Tobago.

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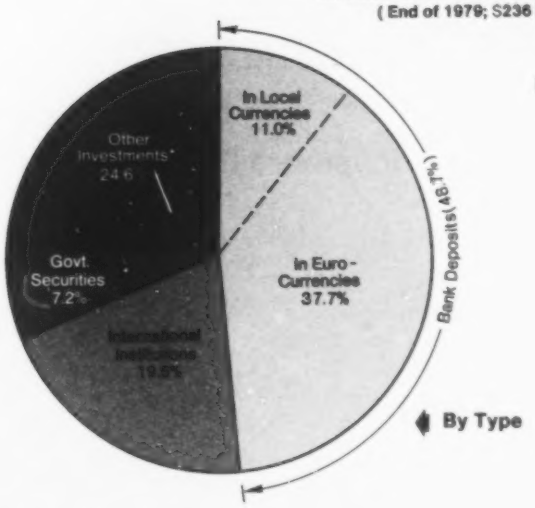
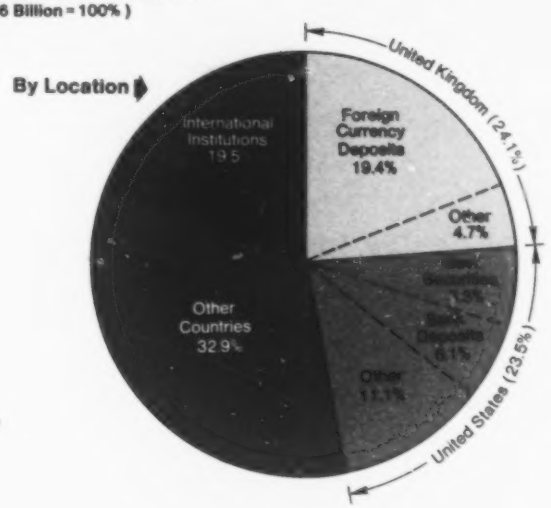
Investment of Oil Exporters' Surplus

(End of 1979; $236 Billion = 100%)





*Private securities, direct investment, and loans

as they did following 1974. As the International Monetary Fund pointed out recently: "The speed at which [the oil-exporting countries] can usefully reinvest their oil earnings in domestic development is limited by economic and social constraints," so that their import growth over the medium term "is likely to proceed at a slower pace than for 1974-1978."

An additional factor contributing to future surpluses is that the unspent revenues accumulated to date—at the end of 1979 they totaled about $235 billion—are generating a steadily increasing flow of income. The oil producers may want, moreover, to maintain their purchasing power by adjusting oil prices in line with rates of inflation and currency depreciations. Given the average low absorptive capacity of the oil-producing countries, this would imply constantly rising oil surpluses in the 1980's.

Implications for Importing Countries

For the major industrial countries, the current situation is slighlty different from what they faced in 1973-1974. Most important, the latest oil price increases are not being superimposed on a simultaneous boom in business activity in all the major countries. Likewise, the rate of monetary expansion in the industrial world appears to be less than in the earlier period. These factors suggest that the inflationary potential of the current oil price hike may be somewhat less than the first time around.

But one aspect that is receiving as much attention this time is that of redirecting (or "recycling") part of the oil surpluses to those oil-importing countries most in need of bolstering their international positions. Assistant Secretary of the Treasury Bergsten recently posed the question whether the accruing surpluses "will be redistributed in adequate amounts, and at appropriate maturities, to the individual countries facing the oil deficits in the first place. This will not occur automatically. Whether it occurs at all depends both on the ability of individual oil-importing countries to attract financing, and on the institutional capability of the international financial system to intermediate on the scale required."

The experience of the commercial banks with recycling the initial oil surpluses after 1973-1974—now wistfully referred to as the "golden age" of recycling— proved to be quite successful. During that period, recycling fulfilled three main functions: it provided the oil exporters with substantial investment opportunities; it prevented the world economy from sinking more deeply into recession; and it provided the basis for the rapid growth of international bank lending, which is considered by many, to be one of the key developments in international finance during the 1970's.

In some respects, international financial markets are deemed to be better equipped this time around than they were in 1974. They have grown about fourfold since the end of 1973; their sources of funds are much more widely spread; and more banks, from a larger number of countries, are involved in international lending and thus available to share the risks. Unfavorable aspects include, however, a much larger volume of debt outstanding and, hence, of maturing debt to be refinanced. Conversely, there is a substantially larger exposure in the borrowing countries on the part of the banks and other lenders These are complex issues whose implications for the recycling process under OPEC II are only beginning to be sorted out.

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